6TH (MIDSUMMER) TENNESSEE VALLEY CONFERENCE

of the

EXPERIMENT STATION and EXTENSION SERVICE DIRECTORS

and the

COORDINATING COMMITTEE

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Signal Mountain Hotel, Chattanooga, Tennessee

Friday-Saturday, June 26-27, 1936

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INTRODUCTION

The Midsummer Conference was called by the Coordinating Committee of the United States Department of Agriculture, the Tennessee Valley Authority, and the Land-Grant Colleges of the Valley area, after the Directors had expressed a practically unanimous desire for such a meeting. The Conference was called to order by Chairman Cooper of the Coordinating Committee, presiding, at 9:40 a.m. on Friday, June 26. The forenoon session recessed at noon and reconvened at 2 o'clock p.m., thus leaving the period from 1 to 2 o'clock for a conference of Station and Extension Directors with Dr. Jardine. During the afternoon session Dean Cooper and Dr. Warburton presided successively. Because of the desire of several Directors to return to their Stations on Saturday, it was voted to hold an evening session and finish the conference on Friday. Chairman Cooper presided at the evening session, beginning at 8 o'clock and adjourning soon after 10 o'clock.

A regional conference had been held by the Federal Soil Conservation Service on the preceding day and the representatives of the Service

were invited to attend the Coordinating Committee conference. Those present at the Conference, and the institutions represented, are set forth in the subjoined list.

PERSONNEL AND INSTITUTIONS REPRESENTED

For convenience, the attendants at the Conference are arranged in groups according to the institutions represented.

State Colleges of Agriculture

Alabama. Dean M. J. Funchess, Director, Experiment Station, Auburn; Walter L. Randolph, Administrative Assistant to President Duncan; Dr. George D. Scarseth, Division of Agronomy and Soils.

Florida. Dean Wilmon Newell, Director, Experiment Station and Extension Service.

Georgia. Director H. P. Stuckey, Experiment Station, Experiment; T. L. Asbury, District Agent, Athens, representing Extension Director Harry L. Brown.

Kentucky. Dean Thomas P. Cooper, Director, Experiment Station and Extension Service (Chairman, Coordinating Committee); Professor George Roberts, Assistant Dean, Lexington.

Mississippi. Dean J. R. Ricks, Director, Experiment Station and Extension Service; L. I. Jones, Assistant Director of Extension, State College.

North Carolina. Dean Ira O. Schaub, Director, Extension Service, Raleigh; Dr. R. Y. Winters, Director, Experiment Station, Raleigh.

South Carolina. Dean R. A. McGinty, Director, Experiment Station, Clemson College.

Tennessee. Director C. E. Brehm, Extension Service; Director C. A. Mooers, Experiment Station; Dr. M. Jacob, Division of Animal Husbandry, Knoxville.

Virginia. Dr. A. W. Drinkard, Jr., Director, Experiment Station; Director John R. Hutcheson, Extension Service, Blacksburg.

Tennessee Valley Authority

Dr. Harcourt A. Morgan, Director, Tennessee Valley Authority;

Mr. Neil Bass, Assistant to Director Morgan;

Director J. C. McAmis, Agricultural Division (Member, Coordinating Committee):

Mr. W. M. Landess, Administrative Assistant, Agricultural Division;

Mr. L. R. Schoenmann, Supervisor of Agricultural Land-Classification, Agricultural Division.

United States Department of Agriculture

Dr. C. W. Warburton, Director of Extension Work (Member, Coordinating Committee);

Dr. James T. Jardine, Chief, Office of Experiment Stations;

Dr. Charles E. Kellogg, Chief, Division of Soil Survey, Bureau of Chemistry and Soils;

Mr. O. E. Reed, Chief, Bureau of Dairy Industry;

Dr. Carleton R. Ball, Executive Secretary, Coordinating Committee;

Dr. W. C. Lowdermilk, Associate Chief, Soil Conservation Service;

Mr. Dillon S. Myer, Chief, Division of Cooperative Relations, Soil Conservation Service;

Dr. R. V. Allison, Section of Erosion Investigations, Division of Research, Soil Conservation Service;

Dr. T. S. Buie, Regional Conservator, Soil Conservation Service, Spartanburg, S. C.

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QUESTIONS PROPOSED FOR DISCUSSION

The following list of questions was proposed in advance by different members of the Conference, for discussion during the sessions:

1. Possible revisions of present Station program of cooperation with Tennessee Valley Authority.

2. Future relations with the Tennessee Valley Authority.

3. Any new lines of work desirable.

4. Further coordination to include Soil Conservation Service activities.

5. Soil Survey: Possibility of expediting field work and printing of reports.

6. Soil Survey: Continuing tie-up of survey of erosion conditions with expanding activities of the Soil Conservation Service.

7. Complete coordination of the State extension program with activities of the Agricultural Adjustment Administration, Soil Conservation Service, and Tennessee Valley Authority on a fairly uniform basis.

8. Fitting the forestry program into the land-use program more satisfactorily, largely through the farm-management viewpoint.

9. Relation of phosphorus and other mineral elements to nutrition of plants, animals, and humans,

10. Has the program of plot and field experiments on phosphatic fertilizers gone far enough? Is the procedure uniform enough?

11. What are the new problems of the program of farm demonstrations of phosphate fertilizers?

12. The place of phosphates in our national economy.

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SUMMARIZED DISCUSSION OF PROBLEMS

1. Possible revisions of present Station program of cooperation with the Tennessee Valley Authority.

Director Stuckey: The program is steadily increasing in scope. Testing of new phosphates requires more greenhouse and plot space. We have had recent assistance from the Tennessee Valley Authority on the community demonstration plant for making sorghum sirup.

Chairman Cooper: Is the present Station program operating satisfactorily in all states? The Directors indicated general approval.

Director McAmis: A new situation is developing. In the first phosphate experiments one phosphate merely was checked against another. It is desirable to determine the residual effects. In Kentucky, the phosphates are included in rotation tests, which helps to get these data.

Dr. Morgan: It is necessary to produce a cheaper phosphate, through improved technique or greater concentration. Good progress has been made. First, the triple superphosphate was developed, then the 64% metaphosphate, and now elemental phosphorus, equivalent to 225% of P_2O_5. The triple superphosphate required wide testing in a farm-management program, including nutrition of farm animals, and the metaphosphate now requires similar tests. Presently it will be necessary to tap the western phosphate fields. Calcium phosphate presents a most serious problem, as exports to foreign countries, now aggregating 1,000,000 tons annually, are being stimulated. Station Directors face a tremendous problem of saving their cotton lands for future generations. Proving a sound commercial program is fundamental and depends on Station results and farm-management practices.

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2. Future relations with the Tennessee Valley Authority.

Director Hutcheson: Present relations are wholly satisfactory. Will these relations be continued? Will the Tennessee Valley Authority practice of allocating funds to States for expansion of State programs be questioned and perhaps its discontinuation compelled?

Director Brehm: Both the Tennessee Valley Authority and the Extension Services have a budget before Congress. If TVA funds are allocated

to extension, will Congress cut the TVA funds? Necessary to keep legislative bodies and the people fully informed and assist the TVA in so doing. The Extension Services and the Tennessee Valley Authority are doing the same work.

Director Warburton: Extension funds are appropriated in lump sum and apportioned to States on definite bases. It would be more difficult to get additional funds for individual States in TVA territory. Better that special funds be appropriated to TVA and allocated to States.

Dr. Morgan: TVA is mandated for navigation and flood control in their widest aspects. A regional program and allocation of funds is better than individual State programs.

Mr. Randolph preferred a coordinated regional program and Dean Schaub approved the present plan.

Chairman Cooper: Two points have been brought out. The satisfaction of a regional program depends on appropriations to the TVA. The present financial relationship should be maintained.

Director McAmis: The TVA program of fertilizer manufacture requires experiments with fertilizers and also demonstrations on farms, which in turn require funds. The program changes with the development of new materials and practices. Only TVA funds would be flexible enough to provide for such changes.

Director Hutcheson submitted and moved the adoption of the following resolution:

> "WHEREAS: Experience indicates that present methods of program procedure and of financing the same are most successful in developing water control in the Tennessee Valley, therefore,
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> BE IT RESOLVED: That we, the Directors of Extension and Experiment Stations in the Tennessee Valley area, in conference assembled, urge that the plans now in operation be continued and expanded as experience proves necessary.

Director Brehm seconded the resolution with the proviso that the matter be placed in the hands of the Executive Secretary for action as and if the TVA found suitable.

Dr. Morgan stated that the TVA would not wish to be placed in the position of asking for such aid, but feels the need of complete coordination in the present emergency and crisis. He suggested that the resolution be held over until the close of the meeting, and this action was agreed to.

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3. Any new lines of work desirable.

This topic, having been partly covered in the discussion of Question No. 2, was passed over.

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4. Further coordination, to include Soil Conservation Service activities.

This was passed over for discussion with No. 7.

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5. Soil Surveys: Possibility of expediting field work and printing of reports.

Director Winters: Feels that the present delays in rate of survey progress and in publication are handicapping the land-use program.

Dean Cooper: At the Chicago meeting the Committee on Experiment Station Organization and Policy went on record as favoring expansion of the Soil Survey.

Dr. Kellogg: There formerly was a balance between funds for survey and for publication. Then publication funds became relatively less. A few years ago the Soil Survey was four years behind on publication. Now much better and only eighty-five manuscripts await publication. An extra

appropriation for publishing survey is just available, and printing should catch up with survey in about a year.

For counties in the TVA area, as surveys are completed, the Survey will prepare hand-colored maps for use of the State Station, Extension Service, and County Agent Leader, and will mimeograph the text in advance of publication.

Mr. Schoenmann: The expansion of survey in the Tennessee Valley puts an extra load on Mr. Hearn and slows down the identification and classification of soils before the field party starts in a new County. The training of young and inexperienced personnel is necessary to any increase in efficiency. Increased volume of funds from States is desirable.

Chairman Cooper: Is there too much detail?

Mr. Schoenmann: More and more detail is being requested by users all the time. Either there must be much detail or all users must be schooled in interpreting the maps where detail is not shown.

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6. Soil Survey: Continuing tie-up of survey of erosion conditions with expanding activities of the Soil Conservation Service.

Dr. Kellogg: The Soil Survey has cooperated with the Soil Conservation Service in making air photographs of eroding areas.

Dr. Lowdermilk: To safeguard the soil, the Soil Conservation Service makes air photographs on a scale of 4 inches to the mile, showing 4 items:

1. Soil type, in cooperation with Soil Survey
2. Slope classification, the basis for treatment
3. Degree of erosion, using survey if any, including number and depth of gullies per unit area
4. Land use: crops, pasture, woodland, et cetera

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7. (Including 4). Complete coordination of the State extension program with activities of the Agricultural Adjustment Administration, Soil Conservation Service, and Tennessee Valley Authority on a fairly uniform basis.

Director Winters: Shall we get together and work out one coordinated program of all agencies, or let each go ahead in its own way, or leave the region to the Tennessee Valley Authority?

Director Brehm: It is a real problem. The Soil Conservation Committees were formed first to demonstrate TVA phosphate fertilizers. Then AAA Adjustment Committees were formed, and finally Soil Conservation Committees were developed by the Soil Conservation Service. All three sets of committees are concerned with land-use and farm-management programs, one from the viewpoint of flood control, one from land-use adjustment, and one from erosion-control standpoints. Representatives of the three different organizations come out and the farmers thus are called together three different times, by three different organizations, for three different purposes. All must clear through the State College as one coordinated program.

Dr. Warburton read a letter from Mr. Darrow of the AAA showing that Soil Conservation Service county associations in Colorado have been merged with Agricultural Adjustment Administration associations and both programs now are being handled by one association.

Director Brehm pointed out the difficulties of making adjustment payments and fertilizer freight payments where some farmers are members of an association and others are not.

Mr. Myer: The Soil Conservation Service has been working out procedures for use of TVA phosphate with Director McAmis and will follow the matter up with the Coordinating Committee and in Washington. The question of county associations has been discussed with the Agricultural

Adjustment Administration and a memorandum on functions and activities in field programs prepared. There seems to be a wide diversity of opinion among men of the State Extension Services, as well as among members of the Soil Conservation Service staff, as to the desirability of uniting the two sets of activities and associations. Some advocate unity and some prefer separate bodies. The State Advisory Committees, including the Station and Extension Directors, are beginning to function.

Dean Cooper: Would action by this regional group be desirable?

Mr. Myer: Yes.

Dean Cooper: Would recommendations as to the Federal approach be welcomed? There has been some difficulty, as the Tennessee Valley Authority asks what the State program is, whereas some other Federal agencies have not done so.

Mr. Myer: Such recommendations would be very welcome. The Soil Conservation Service is changing its approach as fast as possible. The necessity of working under an emergency budget instead of a regular appropriation has prevented long-range projects. The Service must depend on State Advisory Committees for Coordination.

Director Brehm: Our relations with the Soil Conservation Service are fine. In some States the Agricultural Adjustment Administration program is in the State Department of Agriculture, with its political affiliations. It would be harmful to tie county committees to a political organization.

Director Hutcheson: Some Agricultural Adjustment Administration Associations will consist of 5,000 or more members, too large for use of the Tennessee Valley Authority and the Soil Conservation Service.

Dean Cooper: A plan from a State Advisory Committee is very different from a project developed by the Station or Extension Service. A regional procedure in the Soil Conservation Service program is desirable in

the Tennessee Valley Authority area and this Regional Conference or the Directors from the region might act to bring it about.

Regional Conservator Buie: The type of cooperation in South Carolina is illustrated by the pasture program of the Soil Conservation Service. Full discussionsof Station and Extension needs was held by a small group of twelve to fifteen persons. Then a small committee was appointed to study the condition of Soil Conservation Service pastures and make recommendations for procedures within a Soil Conservation Service demonstration area. Some of the phosphate fertilizer was from the Tennessee Valley Authority, some from the Soil Conservation Service.

Mr. Myer: This procedure could apply also outside the Soil Conservation Service demonstration area.

Director Funchess: Some Stations do not yet have a clear-cut soil-erosion program and therefore need all the advice available from experts of the Soil Conservation Service.

Director Hutcheson: The approach depends somewhat on the degree of coordination and on whether both agencies want to cooperate.

Mr. Buie: In the State Advisory Committee of three, the Station and Extension Directors are a majority.

Director Hutcheson: It is hard to start a regional program from the top as there is less likelihood of agreement. Can agree on a program within a single State. How far can a State go in getting Tennessee Valley Authority phosphate for use on State projects outside the Valley area?

Chairman Cooper: When do the Directors wish to meet with Dr. Jardine?

Dean Ricks: I move that the Directors of Stations and Extension convene at 1 p.m. for conference with Dr. Jardine. Motion seconded and carried.

Chairman Cooper: The Conference will meet again at 2 p.m. Adjournment then was taken until that hour.

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8. Fitting the forestry program into the land-use program more satisfactorily largely through the farm management viewpoint.

Director Brehm: Most foresters think of forest land in terms of technical forest use. Under the new Agricultural Adjustment Administration program, including benefit payments for planting trees, the foresters seem to expect large-scale forest planting rather than farm woodlots. Half of the forest land in this area is in farms and constitutes a major farm-management problem. The Federal and State foresters seem to have no program for farm forestry. Tennessee called a conference to establish an extension program for farm forests. It was well attended. A program is necessary, especially on the steep slopes of East Tennessee, where forests should have been left untouched or, at most, only thinned.

Dr. Lowdermilk: It is possible to use trees in a rotation with other crops, as is done in China. For example, if a forest area is to be cleared for crops, no rent is charged for the first or second years. Thereafter the tenant pays rent and must plant trees twenty feet apart and grow his crops between the rows for six to seven years until erosion and cropping deplete the soil. The owner then allows trees to develop for fifty to seventy-five years and then harvests timber again. This would be possible in the United States also.

Dean Cooper: How can a forest program be made up?

Director Brehm: A program in accord with foresters' best judgment is needed. Replies to a questionnaire now being received. There is little knowledge of the value of an acre of timber or woodlot to the farmer. The Tennessee Valley Authority apparently has no forestry program.

Dr. Morgan: The Tennessee Valley Authority forestry program is only on its own lands bought to protect the margins of its reservoirs.

Dr. Jardine: I am interested in the integration of the work of foresters and farm-management men and am helping to finance a man to help integrate it in this area.

Secretary Ball: I understand that the Forest Service is just creating a new unit to cooperate in the management of State and private forests, including farm woodland.

(Question No. 9 on the original program was passed over, on the statement that it would be the subject of private conference by interested Directors).

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9. The relation of phosphorus and other mineral elements to nutrition of plants, animals, and humans.

Dr. Morgan: Much research already has been conducted in this field but more remains to be done. Mineral diseases are not rare, as witness the recent selenium trouble in the West. The relation of calcium phosphate to human welfare is very intimate. The United States cannot afford to export 1,000,000 tons of phosphate annually. But the American people must speak upon the subject. The phosphate lands of Florida and Tennessee all are in private hands, and there is no national program regarding their conservation.

Chief Reed: Phosphate deficiency is more widespread than has been supposed. Areas recently have been found in Florida, Minnesota, Missouri, Montana, and Wisconsin. Early nutritional studies on plant feedstuffs showed mineral deficiencies and resulted in research and the preparation of commercial mineral feeds. There have been many researches on phosphorus mineral feeds for animals but also many cases of injury to the animals. The safest way is from the soil to plants to animals. Tests

showed that a P-deficient alfalfa was eaten only reluctantly. Only heavy feeding of concentrates prevents a greater demand for phosphorus in plants. Grass is a splendid cattle ration. Silage and roughage make a sufficient ration for high-production dairy cows. Ca and P are important in diet of growing children. Splendid research under way but not sufficient in scope or volume.

Director Newell: Other minerals have important functions. A little copper applied to Everglades soil made crop production possible. Lack of zinc causes the "bronze" and "frenching" of citrus. The Florida disease of cattle called "salt-sick," costing $3,000,000 annually, is due to lack of iron and possibly of copper also. Crack stem of celery is due to boron deficiency. Everglades grasses lack calcium and perhaps iron also. The chewing of bones of cattle was held popularly to be proof of a phosphorus deficiency and research proved this to be true, and that a lack of iron also was indicated. These deficiencies affect both animals and humans. Anemia is prevalent in some areas, and infections by hookworm and pellagra follow.

Dr. Allison: There are many difficult problems in connection with mineral deficiencies. In the case of copper and zinc, the latter is supplementary to the former. Restoring soils requires full attention to their mineral nutrition.

Director Mooers: Analyses have been made of many feeding-and foodstuffs, but data are not yet available. Korean lespedeza draws heavily on P and K and complaints have been received about the poor quality of corn and tobacco afterward.

Dr. Jacob: Mineral deficiencies are very important to livestock. Feeding tests show that roughage is sufficient, without grain, if grown on proper soil.

Dr. Kellogg: In Australia a cobalt deficiency occurs, and a deficiency of nickel in France. Selenium is harmfully abundant in parts of our West. Phosphorus is especially important as a key element in control of erosion by vegetative cover. Calcium phosphate deficiency occurs in part of Puerto Rico, rickets being prevalent on the acid, leached soils of the northern part of the Island.

Dr. Morgan: Phosphorus is the limiting element in many crops. How great is the national supply of P and of many other elements? 75% of the phosphate fertilizer applied in the United States carries only 8 - 10% of P_2O_5. What do we want to have made?

Dr. Kellogg: Reducing the cost of P by one half cuts the fertilizer bill of only 5% but doubling the amount of P in the formula cuts fertilizer costs by 25%.

Dr. Jardine: The great problem of the end product of production warrants much more research.

Dr. Morgan: What is the demand for manganese?

Dr. Kellogg: Very little.

Director Newell: How can we conserve the phosphorus resource through reducing the quantity of insoluble P in the soil?

Dr. Kellogg: Not yet possible in field practice but research should find a remedy.

Dr. Morgan: Does metaphosphate act similarly?

Directors Mooers: Metaphosphate in general has given excellent results. A report on its chemical characteristics is in preparation.

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10. Has the program of plot and field experiments on phosphatic fertilizers gone far enough and is the procedure uniform enough?

Director Mooers: Not necessary that experiments be uniform. Some will be made on cotton, some on corn. Some run for a short time, others long. Dr. Roberts uses small quantities of P.

Director McAmis: Could we plan for a uniform series of tests on each of the different soil types? How about the residual effects on successive crops in a rotation? It would help Dr. Curtis if more results could be derived from uniform experiments. The present methods will give final results in time, but quicker indications might be had if more tests were added.

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11. What are the new problems in the program of farm demonstrations of phosphate fertilizers.

Director McAmis: The community Demonstrations Farms selected by the local committees are above the average in size. Also, there has not been enough study of conditions on these farms.

Director Hutcheson: The original idea was that of service to the community by the Demonstration Farm owner. The present and increasing attitude is that it is a method for obtaining cheap phosphates. We should educate the supervisors and get the Assistant County Agents together in conference.

Mr. Randolph: Feels that this is a real danger. Also that it will be hard to get records unless the demonstration is closely supervised.

Asst. Director Jones: Our only difficulty in Mississippi is to supply the phosphate desired. The demonstration farms also are not always of average size.

Director Hutcheson: If average farms are wanted simply order that in future part of those selected be large, part midsize, and part small.

Dean Cooper: Many small farms are not sound, economically speaking, and are subsistence or part-time enterprises.

Director McAmis: This activity should reach the tenant problem in some way.

Asst. Dean Roberts: The quantity of fertilizer furnished to large farms should be limited in some way. Kentucky limits to 2 tons. Is applied in a rotation that ends with 4 years of grass.

Asst. Director Randolph: The movement will be criticized as the Extension Service has been, for working with the large farmers.

Director McAmis: The real approach is from the rotation standpoint. There are two objectives: the effect on the plant and the effect on the farm unit. There is need to coordinate practices in different States. Close supervision has been recommended here. In Kentucky we have 1 supervisor for 7 counties. Alabama has 1 supervisor for her counties. Mississippi has a District Agent for her 3 northeastern counties. The chief weakness in the system seems to be lack of knowledge of the program and objectives. More get-togethers and more supervision are needed.

Dr. Morgan: The program of the Tennessee Valley Authority is in State interest only. There are about 700 fertilizer mixers, mostly buying their phosphates. The farmer may be touching on a real principle when he demands fertilizer to save his land. The demonstration program is good. How far shall we go?

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12. The place of phosphorus in our national economy.

Dr. Morgan: The land needs are so impelling that a new program of plant food development and administration seems necessary. It may be that we have carried too far the commercial fertilizer formula. The concentrate production of plant foods will reduce the cost of these products to the land.

Our work at Muscle Shoals has been in the direction of higher concentrates with the view of cheapening the cost of plant food units to the land and, at the same time, emphasize the use of legumes as the major source of nitrogen on the farms. We may not have sufficiently emphasized the place of legumes as land covers, green manures, and in livestock economy.

Now may be the most acceptable time for a change in our program of plant food administration. We all know the influence of lime and phosphorus in the increase of nitrogen in the soil through legumes. We know the use of legumes as ground cover, both as pasturage and for protection of the soil against erosion. With an increase in the use of legumes there would naturally follow an increase in animal husbandry in the area, an increased protection against erosion for our soil, and at the same time a better farm economy would result.

The conservation of our phosphate resources is of vital concern to our national welfare. Without this basic element available, the security of our future cannot be predicted. I feel that we should give thought as to how national consciousness to this problem can be invoked.

Director Hutcheson: We should ask our Coordinating Committee or the Association of Land Grant Colleges to determine the place of phosphorus in our national economy. Furnish the data to the national farm organizations and let them lead the fight for nationalization of our phosphate resources.

Dr. Kellogg: This is the most serious problem facing agricultural development and human evolution. Supplies may last 2,000 years, possibly, at present rate of use. Exports are now 1,000,000 tons annually, of which one-third goes to Japan. Africa can supply Europe. Russia is reported to have large deposits. It is doubtful if phosphates should be exported from

the South, even to other parts of this country. The deposits of the Far West should be tapped to supply the North, and as much of the national demand as concentrations and transportation changes will permit.

MOTIONS and RESOLUTIONS

Director Hutcheson: Moved that the Coordinating Committee prepare a resolution to be presented, in the name of this Tennessee Valley Conference, to the Executive Committee of the Association of Land-Grant Colleges and Universities for use, if possible, in connection with an educational program on land use. Motion seconded and carried unanimously.

It was suggested further that the proposed land-use program at the Association Meeting include two chief topics:

1. Mineral deficiencies in the soil in relation to the development of plants and animals.

2. The national phosphate situation.

Director Hutcheson then moved the adoption of his resolution presented earlier (page 6) as follows:

> "WHEREAS: Experience indicates that present methods of program procedure and of financing the same are most successful in developing water control in the Tennessee Valley, therefore,
>
> "BE IT RESOLVED: That we, the Directors of Extension and Experiment Stations in the Tennessee Valley area, in conference assembled, urge that the plans now in operation be continued and expanded as experience proves necessary."

The motion was seconded and carried. The Conference then adjourned sine die.

Respectfully submitted,

(Signed)

Carleton R. Ball
Executive Secretary, Coordinating Committee

MEETING OF THE COORDINATING COMMITTEE

Saturday, June 27, 1936

Pursuant to the resolution adopted by the Conference (page 19), the Coordinating Committee met at 9 o'clock a.m. and drafted the resolution to be presented to the Executive Committee of the Association of Land-Grant Colleges and Universities. The text of the resolution is as follows:

"WHEREAS: It has been fully demonstrated by the research of the U. S. Department of Agriculture, the State Agricultural Experiment Stations, and other agencies, through a period of many years, that phosphorus not only is vitally important to human welfare but definitely is a limiting factor in the development of plants, animals, and humans, and

WHEREAS: The soils of the United States in general are deficient in this vital element, and rapidly are becoming more so, and

WHEREAS: The procurable mineral supplies in this country and in the world are limited and therefore a most serious crisis confronts the country in respect to supplies of phosphorus for a permanent agriculture and for the defense and security of the nation, therefore

BE IT RESOLVED: That the Tennessee Valley Regional Conference of the Directors of Agricultural Experiment Stations and Extension Services, assembled at Chattanooga, Tennessee, on June 26, 1936, requests the Executive Committee of the Association of Land-Grant Colleges and Universities to appoint a special committee, seeking therein the cooperation of the U. S. Department of Agriculture, to report, as a part of the General Sessions of the annual meeting of the Association at Houston, Texas, in November 1936, on the conservation and use of our national phosphate resources for the permanent benefit of the American people."

Attest:

(Signed) Carleton R. Ball,
Executive Secretary, Coordinating Committee